

Remarks

This is in response to the Official Action dated July 6, 2007.

We thank the Examiner for allowing claims 1-4 and 9-15 and for the indication of Allowability of claims 6 and 7. However, in light of the comments presented below, in which we traverse the rejections of claims 5 and 8, claims 6 and 7 have not been rewritten in independent form.

The Examiner has rejected Claims 5 and 8 under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,774,496 to Butler et al (hereinafter "Butler"). We respectfully submit that: (1) the Examiner has failed to establish a *prima facie* case of obviousness; and (2) the inventions recited in claims 5 and 8 are unobvious over the teachings of Butler.

In the rejection, the Examiner admits that Butler fails to compute a "mean absolute LLR value", as recited in claim 5, for each transmission rate. Instead, according to the Examiner, Butler teaches computing a Yamamoto quality metric for each rate to aid the determination of the transmission rate. Then, without any documentary or evidentiary support, the Examiner alleges: "Since LLR is a well known quality indicator of a received data, it would have been an obvious alternative to Yamamoto quality metric to one skilled in the art at the time the invention was made". (In what follows, in the context of the Examiner's allegation, it is assumed that the Examiner meant to say "mean absolute LLR value", not "LLR", because it is the former that is recited in claim 5, not the latter.) We respectfully submit that this is a mere unsupported assertion, which is not sufficient to sustain a *prima facie* case of obviousness, and, in any event, it is simply untrue.

As is known, the Yamamoto metric is a binary frame quality indicator, i.e., it is a binary number (0 or 1) which is a metric for the entire frame. By contrast, as discussed below, neither LLR per se (which is a bit quality indicator), nor mean absolute LLR (which is a frame quality indicator), is a binary number.

LLR denotes the Log-Likelihood-Ratio of a bit and is equal to $\log(p/(1-p))$, where p denotes the probability of the bit being a 1 and $(1-p)$ denotes the probability of the bit being a 0.

Significantly, the LLR of a bit is a continuous number, not a binary number. An LLR having a

positive value indicates that the bit is more likely to be a 1, whereas an LLR having a negative value means that the bit is more likely to be a 0. Clearly, LLR *per se* is not a frame quality indicator because every bit in the frame has an LLR value.

Mean absolute LLR is equal to the sum of the absolute values of the LLRs of all the bits in a frame divided by the number of bits in the frame. Mean absolute LLR is a metric for the entire frame. However, like the LLR of an individual bit, mean absolute LLR is a continuous number, not a binary number.

As noted above, the Yamamoto quality metric is a binary number, i.e., a single bit, which is indicative of whether the frame is correctly decoded or not. Indeed, Butler et al. specifically states in column 6 that the Yamamoto quality metrics are each typically represented by a 1 bit value for each frame. By contrast, "mean absolute LLR value", as recited in claim 5, is a continuous number. We respectfully submit that it would not be obvious to substitute "mean absolute LLR value" for the Yamamoto quality metric used in Butler because, among other reasons, the former is a continuous number, whereas the latter is a binary number. This conclusion is reinforced by the fact that there is no mention of LLR or "mean absolute LLR value" in Butler. Moreover, the Viterbi decoders discussed in Butler for example, at col. 5, lines 65 to col. 6, line 25, do not normally output LLRs, and this fact alone would deter one of ordinary skill in the art from even considering the use of LLRs or "mean absolute LLR value". Consequently, in the opinion of the applicants, the teachings of Butler would not lead one of ordinary skill in the art to the invention recited in claim 5 and, because claim 8 depends from claim 5, would not lead one of ordinary skill in the art to the invention recited in claim 8.

Accordingly, we respectfully submit that the rejection fails to establish a *prima facie* case of obviousness, and therefore should be withdrawn. Furthermore, and in any event we respectfully submit that the claimed subject matter is not obvious in light of Butler. Accordingly we respectfully request the withdrawal of the rejections of claims 5 and 8.

Accordingly, each of claims 5, 6, 7 and 8 are now allowable and a Notice of Allowance is hereby requested.

Appln. no. 10/690,604
Response dated November 29, 2007
Office Action dated July 6, 2007

The Commissioner is hereby authorized to debit \$460.00 from Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP, representing the fees for a two month extension of time.

The Commissioner is hereby authorized to charge any additional fees, and credit any over payments to Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP.

Respectfully submitted,

XUE, Guoqiang et al

By: /Jeffrey M. Measures/
Jeffrey M. Measures
Reg. No. 40,272
Borden Ladner Gervais LLP
World Exchange Plaza
100 Queen Street, Suite 1100
Ottawa, ON K1P 1J9
CANADA
Tel: (613) 237-5160
Fax: (613) 787-3558
E-mail: ipinfo@blgcanada.com

JMM/dbm